Amendments to the Specification:

Please replace the paragraph beginning on page 1 at line 22 with the following rewritten paragraph:

Ever since they were ~~it was~~ invented in the early 1990s (Science, 251, 767-773, 1991), high-density arrays formed by spatially addressable synthesis of bioactive probes on a 2-dimensional solid support have ~~has~~ greatly enhanced and simplified the process of biological research and development. The key to current microarray technology is deposition of a bioactive agent at a single spot on a microchip in a "spatially addressable" manner.

Please replace the paragraph beginning on page 18 at line 13 with the following rewritten paragraph:

The spectroscopic response of an individual bead is obtained in a microspectrometer set up, consisting of an optical microscope and a spectrophotometer. The procedure for obtaining this response starts by first obtaining a magnified image of the microspheres. This is performed by focusing light from a light source, 1a in Figure 2, (e.g. halogen or xenon lamp), through the collector lens assembly, 2a, down a dichroic mirror, 4, and onto the microarray specimen, 6. The reflected light is then focused by the objective lens, 5 ~~6~~, so that a magnified image of a given field of view can be captured. The removable mirror, 9, controls the option of image capture by the digital camera, 10, or spectral capture by the micro-spectrometer, 13. The optical microscope used here is an Olympus BX-30MFSP modular optical system (from Olympus PID Corp, Woodbury, NY), equipped with a Spot RT-Slider Camera (from Diagnostic Instruments, Inc.). Optical microscopy and fluorescence microscopy methods are broadly described by D. B. Murphy, "Fundamentals of Light Microscopy and Electronic Imaging", Wiley-Liss, Inc. Publishing, 2001; and D. J. Goldstein, "Understanding the Light Microscope. A Computer-aided Introduction", Academic Press, California, 1999. Depending on the magnification used, optical microscope imaging can provide the location of hundreds to thousands of beads in

a single field of view. The combination of many images can provide the location to tens and hundreds of thousands of bead locations.

Please replace the paragraph beginning on page 19 at line 16 with the following rewritten paragraph:

Two-dimensional translation of the substrate, containing the microarray, 6 in Figure 2, allows a bead of interest to be positioned within the spectrometer aperture, 11. Changes in the magnifying power of the objective lens, 5, and the variable zoom lens, 8, allow a ~~allows~~ different amount of the bead area to be confined by the aperture opening. For analysis of colors in these microspheres, it is preferred that at least two times the area defined by the diameter, D, of the bead is within the aperture opening, i.e. an area of the squared length dimension, $\pi(D/2)^2$, containing the bead of interest. More preferably, one time the area based on the diameter of microsperhere is used, and most preferably, 0.5 times the diameter region, in the central portion of the bead, is selected by the aperture opening.

Please replace the paragraph beginning on page 21 at line 10 with the following rewritten paragraph:

Comparison of the fluorescence intensity variation in several magenta dyes was made using the hybrid analytical system described in Example 2. By incorporating fluorescence cubes, each consisting of an exciter filter, 3a in Figure 2, a dichroic mirror, 4, and a barrier filter, 7, the fluorescence emission characteristics of a colorant can be monitored. For the magenta dyes used in this invention application, the excitation filter was selected to band pass 545-580 nm, the dichroic mirror had a cut off at 600 nm, and the high pass barrier filter was selected to admit >610 nm light. By setting the spectrometer to collect fluorescence emission intensity for a fixed time, while keeping other experimental conditions constant, comparison of the fluorescence intensity between different dyes were made, Table 1.

Please insert a new page 23A as attached, including the following:

PARTS LIST

1 yellow colored microsphere
1a light source
2 magenta colored microsphere
2a collector lens assembly
3 cyan colored microsphere
3a exciter filter
4 dichroic mirror
5 objective lens
6 microarray specimen
7 barrier filter
8 variable zoom lens
9 removable mirror
10 digital camera
11 angled mirror
13 microspectrometer